

## Quadratics: Profit and Income

$$\text{Income} = \text{tickets sold} * \text{ticket price}$$

$$\text{Profit} = \text{Income} - \text{Expenses}$$

**Example:** Suppose a group wanted to determine the income and profit of their fundraiser. Their treasurer found the following info would help.

- Ticket sold (s) is equal to  $4000 - 250x$  where  $x$  is the price per ticket. In equation form:  $S = 4000 - 250x$
- The expenses for the fundraiser will total \$7500.

a. What equation will determine how income (I) is a function of ticket price (x)?

$$\begin{aligned} I &= \text{Ticket Sold} \cdot \text{Ticket Price} \\ &= (4000 - 250x) \cdot x \quad \leftarrow \text{Use distributive Property to Simplify!} \\ &= 4000x - 250x^2 \end{aligned}$$

b. What equation will give profit (P) as a function of ticket price (x)?  $P = -250x^2 + 4000x - 7500$



